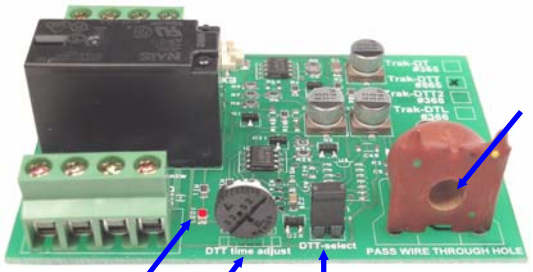
TIMED STATION STOP with Momentum package

Item 686

for use with any type of track power,
consists of 1-#369 (12VPS), 1-#368 (TRAK-DTT2), 1-567 MO-1



A station stop with momentum is easily made with the TRAK-DTT2 in conjunction with the MO-1.

The TRAK-DTT2 combines three functions in one unit. The input circuitry has a latch function incorporated into it. Therefore the timer function is only activated on every other sense of current flow. The first time current flows, the timer is activated. The second time current flows the input to the timer is "reset" for the next current activation. Thus performing a simple station stop device. When you first enter the stop section, the TRAK-DTT activates and is wired to remove power from the stop section of the track via the MO-1. Then, after the time is up, the TRAK-DTT2 relaxes it's relay which tells the MO-1 to re-apply power to the stop section. When power is re-applied to the stop section, the TRAK-DTT2 becomes reset and is ready for the next activation.

The time period of the TRAK-DTT2 is adjustable from a momentary relay activation as minimum to a maximum of approximately 75 seconds. The minimum setting should not be used for station stop applications. Be sure to turn the potentiometer to a setting beyond it's minimum setting. Trak-DTT2's with longer time can be special ordered. They are not available in this packaged version but must be purchased separately.

Install wires by stripping insulation back 3/16", place wire in hole, run screw down (CW) to clamp in position. Best to use stranded wire. Suggested wire sizes: Signal type wires can be 24 - 30 awg, 12vDC and other medium loads: 20 - 26 awg, Power type wires: 12 - 18 awg.

In order for the Trak-DTT2 electronics to function properly it is essential that a "regulated" power supply of 12 VDC be employed. This 12 VDC power is only for the electronics and has absolutely nothing to do with track power. Failure to use a "regulated" 12 VDC can cause erratic functioning or actual destruction of the TRAK-DTT2. For proper power supply refer to the 12VPS (Item 369). This is included in this package.

Various drawings for wiring the Trak-DTT2 with the MO-1 are included with this package. Use the drawing that matches your scenario.

The "16vAC accessory input" can be from any AC power source of 14 to 18 volts. It is desirable that this be from a separate transformer than the one used to operate your trains. If you don't have one, item #690 is an excellent source.

If you need to add another timed station stop operation on another track or a station stop of different duration, you merely need to add another TRAK-DTT2 (#368) since you already have the 12VPS. You can also add TRAK-DT's (#365), TRAK-DTT's (#565) and TRAK-DTL's (#366) to the 12VPS for other signaling and automation operations. Providing enough AC input power is available, typically 12 Trak-DTx's type devices can be used with one 12VPS.

Since no relay contacts of the Trak-DTT2 are used, you can wire up whatever else you would like it to turn on or off during the timed stop.

MO-1 basic wiring. See MO-1 instructions on our web site for full details if needed.

Wiring diagrams for momentum stop installations are included.

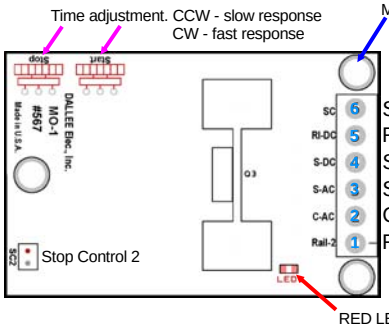


Fig 1: MO-1 connections

SC.....Stop Control
R1-DC..Rail 1-DC, common to stop rail DC
S-DC....Stop - DC
S-AC....Stop - AC
C-AC....Common rail to stop rail AC
Rail-2...Rail-2 DC = opposite rail, AC = opposite rail's track power

The MO-1 provides the addition of momentum starts / stops of trains, trollies, or other items that a gradual on/off control is desired using AC or DC track power. By using momentum control to the start/stop control, wear and tear on the gear drive and motor can be greatly reduced even if the contols are set to the fastet response. The MO-1 can handle a total of 8 ampere's AC or DC. It's DC operation is limited toonly one polarity, the opposite polarity will result in a passing of that power without any momentum control's. Burn out damage from overloads is not covered by warranty, whether expressed or implied.

Installation: Find a convenient location to place the MO-1 board. By using three #6 wood screws, secure the MO-1 to your control board. Connections are shown for general connections. They differ as to which type of track power you are controlling and by how you are controlling the MO-1. The MO-1 is controlled in these drawings by the "SC2" input. This is plugged from the Trak-DTT2 to the MO-1 with the provided two pin jumper wire harness as shown in the wiring diagrams.

Install wires by stripping insulation back 3/16", place wire in hole, run screw down (CW) to clamp in position. Best to use stranded wire. Suggested wire sizes: Rail-2 input 20 - 26 awg, The track power inputs should be 12 - 18 awg.

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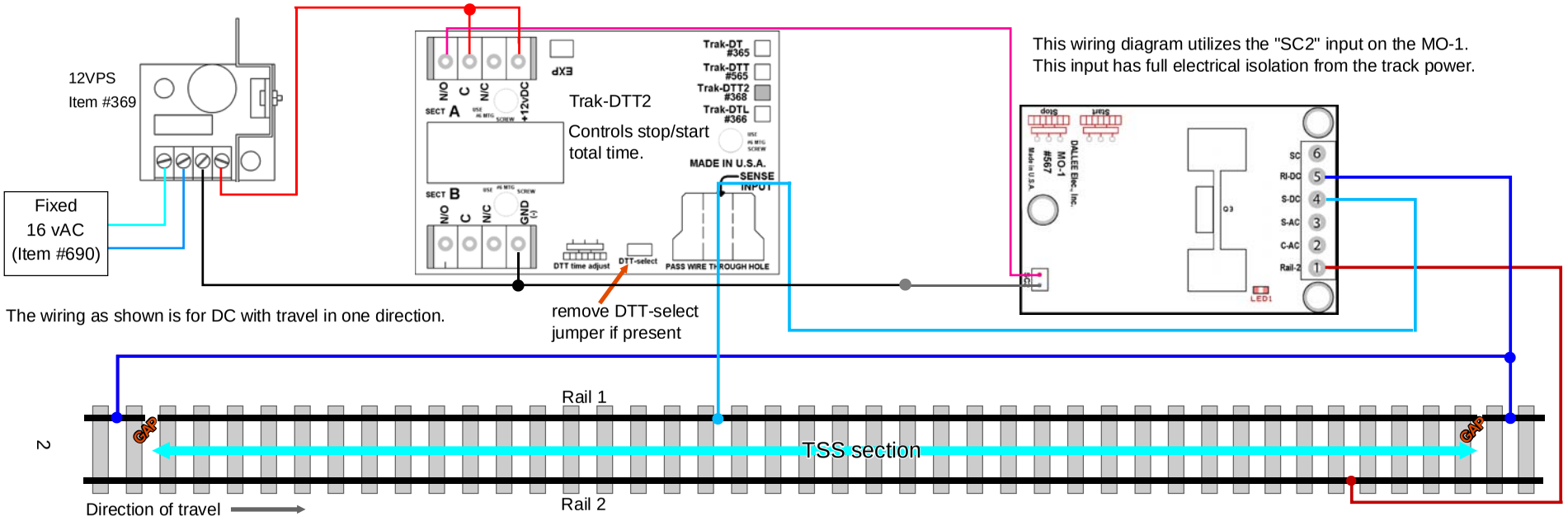
Station Stop for DC operators with Momentum

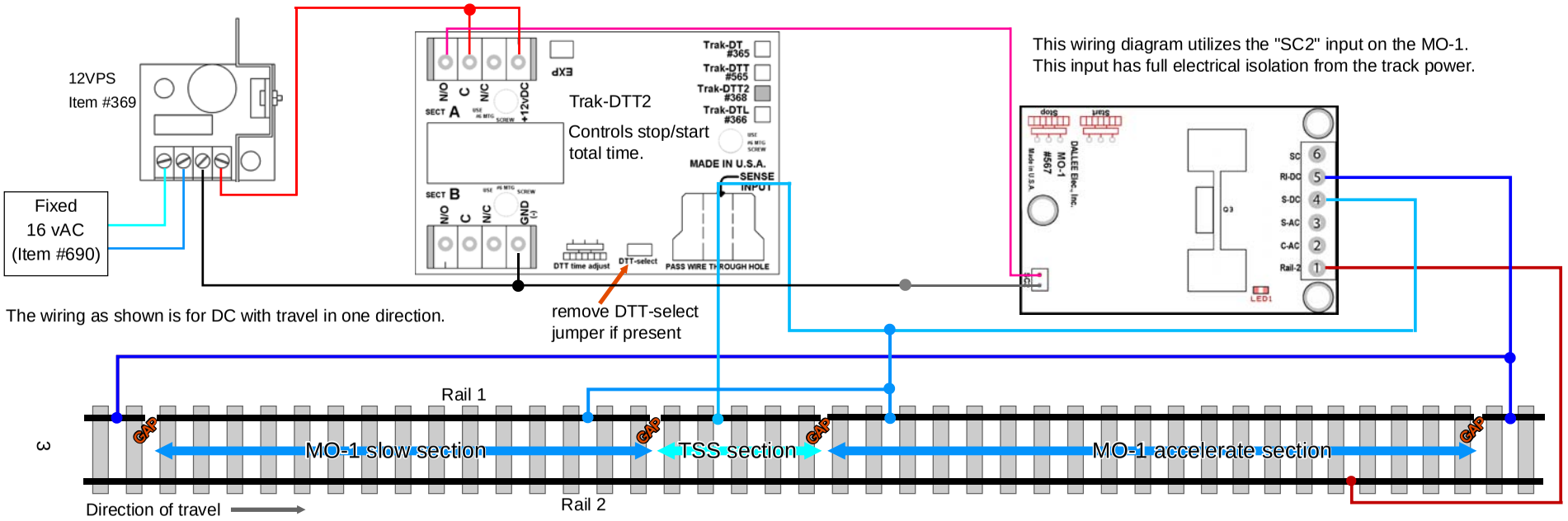


This setup utilizes the Trak-DTT2 for setting the MO-1 into action. The direction of travel is from the left to right and as per NMRA conventions, the right rail is the "+" rail (Rail 2). If you operate in the opposite direction, no momentum or stopping will occur but the Trak-DTT2 will trip to it's second state (it requires another trip to get it back to it's first, ready, state). "G" gauge operators need to switch the rail wiring from what's shown to the opposite polarity since "G" gauge operation is typically the opposite of the standard convention. Therefore, if wired as shown, "G" gauge operators would be running from the right to the left.

Length's: "TSS" (Trip Stop/Start) section needs to be long enough to hold the entire train while stopping and starting to full speed. Otherwise, full track power will be put to the locomotive and the momentum affect will not occur properly. In addition, the Trak-DTT2 will not properly sequence. Adjustment of the "STOP" and "START" times of the MO-1 are necessary as well as the maximum track speed for proper operation and the Trak-DTT2 having sufficiently timed out the station stop time before the train is allowed to proceed. Failure to have this long enough will result in possibly stopping on every other activation. For initial setup, set the Trak-DTT2 time fully CW, then after operating with the momentum settings desired, set the Trak-DTT2 stop time to that desired (you may start shorter as long as you do not have this time shorter than it takes the MO-1 to stop the train).

Operation: When entering the "TSS" section, the Trak-DTT2 will activate it's time function. The Trak-DTT2 sets the MO-1 to decelerate the train to a full stop. When the Trak-DTT2 time is up, it will then tell the MO-1 to release the train which will gradually apply track power (set by the "START" potentiometer) until full speed is achieved.

Station Stop for DC operators with Momentum and lighted cars / caboose



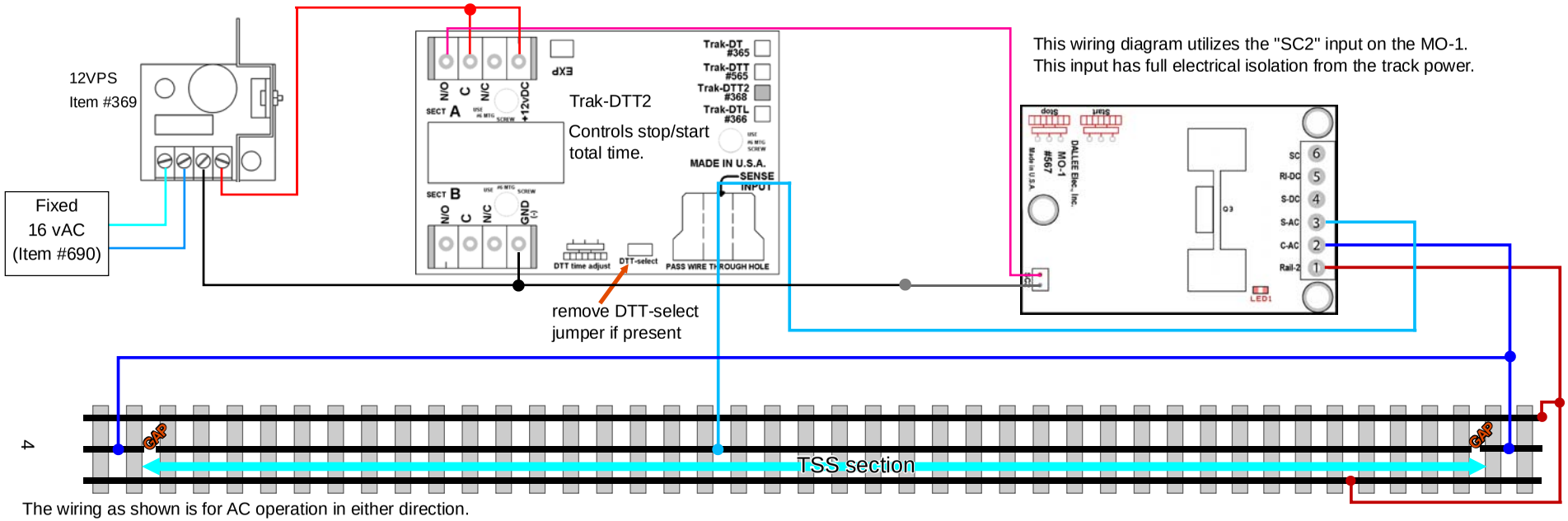
This setup utilizes the Trak-DTT2 for setting the MO-1 into action. The direction of travel is from the left to right and as per NMRA conventions, the right rail is the "+" rail (Rail 2). If you operate in the opposite direction, no momentum or stopping will occur but the Trak-DTT2 will trip to it's second state (it requires another trip to get it back to it's first, ready, state). "G" gauge operators need to switch the rail wiring from what's shown to the opposite polarity since "G" gauge operation is typically the opposite of the standard convention. Therefore, if wired as shown, "G" gauge operators would be running from the right to the left.

Length's: "MO-1 slow section" needs to be long enough to encompass the entire end of the train before the engine enters the "TSS" section. The "TSS" (Trip Stop/Start) section needs to be long enough to hold the engine while stopping and starting. "MO-1 accelerate section" needs to cover the engine before it achieves full speed. Otherwise, full track power will be put to the locomotive and the momentum affect will not occur properly. This setup differs from the previous in that the entire train is contained within the power control of the MO-1. This is necessary since lighted cars/caboose will jumper full power into the TSS section (as in the previous drawing) causing the train to jump in speed. Since deceleration is usually quicker than acceleration, that side has been made longer. You may choose to make them whatever lengths that suit. Just remember that the entire train needs to be encompassed by the power coming from the MO-1 and not that of uncontrolled track power.

Adjustment of the "STOP" and "START" times of the MO-1 are necessary as well as the maximum track speed for proper operation and the Trak-DTT2 having sufficiently timed out the station stop time before the train is allowed to proceed. Failure to have this long enough will result in possibly stopping on every other activation. For initial setup, set the Trak-DTT2 time fully CW, then after operating with the momentum settings desired, set the Trak-DTT2 stop time to that desired (you may start shorter as long as you do not have this time shorter than it takes the MO-1 to stop the train). You may also want to set the MO-1 to the fastest STOP possible and then adjust from there. The slow down process won't occur until the engine enters the TSS section. Again, the TSS section has to cover the engines distance from the stop trigger to the start. It cannot get out of this section or the Trak-DTT2 may not trigger properly on each event, i.e., you may possibly pass another time before stopping.

Operation: When entering the "TSS" section, the Trak-DTT2 will activate it's time function. The Trak-DTT2 sets the MO-1 to decelerate the train to a full stop. When the Trak-DTT2 time is up, it will then tell the MO-1 to release the train which will gradually apply track power (set by the "START" potentiometer) until full speed is achieved. It is not necessary for the engine to stay in this section after it starts which is why another power section is shown after leaving the TSS section.

Station Stop for AC operators with Momentum



The wiring as shown is for AC operation in either direction.

Two rail AC operators:

Center rail = Right hand rail
Outside rail's = Left hand rail

This setup utilizes the Trak-DTT2 for setting the MO-1 into action. The train may enter in either direction.

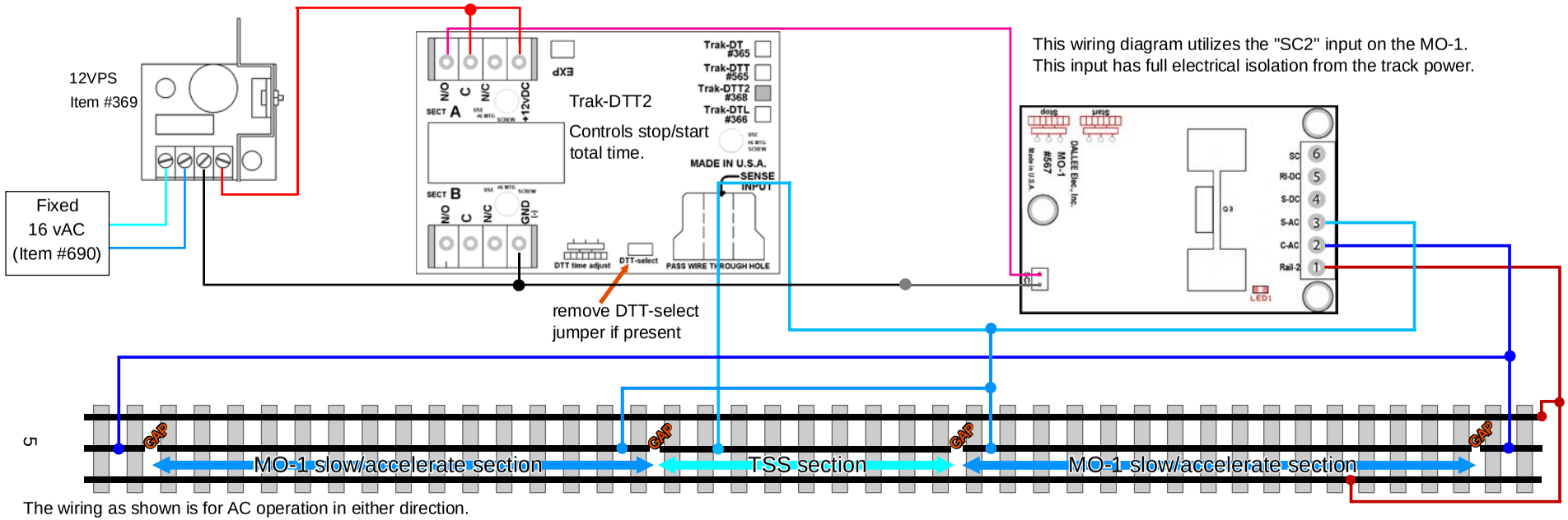
Length's: "TSS" (Trip Stop/Start) section needs to be long enough to hold the entire train while stopping and starting to full speed. Otherwise, full track power will be put to the locomotive and the momentum affect will not occur properly. In addition, the Trak-DTT2 will not properly sequence. Adjustment of the "STOP" and "START" times of the MO-1 are necessary as well as the maximum track speed for proper operation and the Trak-DTT2 having sufficiently timed out the station stop time before the train is allowed to proceed. Failure to have this long enough will result in possibly stopping on every other activation. For initial setup, set the Trak-DTT2 time fully CW, then after operating with the momentum settings desired, set the Trak-DTT2 stop time to that desired (you may start shorter as long as you do not have this time shorter than it takes the MO-1 to stop the train).

Operation: When entering the "TSS" section, the Trak-DTT2 will activate it's time function. The Trak-DTT2 sets the MO-1 to decelerate the train to a full stop. When the Trak-DTT2 time is up, it will then tell the MO-1 to release the train which will gradually apply track power (set by the "START" potentiometer) until full speed is achieved.

Station Stop for AC operators with Momentum and lighted cars / caboose

Two rail AC operators:

Center rail = Right hand rail
Outside rail's = Left hand rail



The wiring as shown is for AC operation in either direction.

This setup utilizes the Trak-DTT2 for setting the MO-1 into action. The train may enter in either direction and contain lighted passenger cars or a lighted caboose .

Length's: "MO-1 slow / accelerate section" needs to be long enough to encompass the entire end of the train before the engine enters the "TSS" (Trip Stop/Start) section and needs to cover the engine before it achieves full speed. The "TSS" section needs to be long enough to hold the engine while stopping and starting. Otherwise, full track power will be put to the locomotive and the momentum affect will not occur properly. This setup differs from the previous in that the entire train is contained within the power control of the MO-1. This is necessary since lighted cars/caboose will jumper full power into the TSS section (as in the previous drawing) causing the train to jump in speed. If only traveling in one direction, and since deceleration is usually quicker than acceleration, that side can be made longer. They were shown to be equal distance from the TSS section so that entering the stop section can be done in either direction. You may choose to make them whatever lengths that suit. Just remember that the entire train needs to be encompassed by the power coming from the MO-1 during deceleration and acceleration and not that of uncontrolled track power.

Adjustment of the "STOP" and "START" times of the MO-1 are necessary as well as the maximum track speed for proper operation and the Trak-DTT2 having sufficiently timed out the station stop time before the train is allowed to proceed. Failure to have this long enough will result in possibly stopping on every other activation. For initial setup, set the Trak-DTT2 time fully CW, then after operating with the momentum settings desired, set the Trak-DTT2 stop time to that desired (you may start shorter as long as you do not have this time shorter than it takes the MO-1 to stop the train). You may also want to set the MO-1 to the fastest STOP possible and then adjust from there. The slow down process won't occur until the engine enters the TSS section. Again, the TSS section has to cover the engines distance from the stop trigger to the start. It cannot get out of this section or the Trak-DTT2 may not trigger properly on each event, i.e., you may possibly pass another time before stopping.

Operation: When entering the "TSS" section, the Trak-DTT2 will activate it's time function. The Trak-DTT2 sets the MO-1 to decelerate the train to a full stop. When the Trak-DTT2 time is up, it will then tell the MO-1 to release the train which will gradually apply track power (set by the "START" potentiometer) until full speed is achieved. It is not necessary for the engine to stay in this section after it starts which is why another power section is shown after leaving the TSS section.